

REMARKS

Claims 1 to 3, 6, 8 to 10, 14, 15, 17, 19, 20, 22, 24 to 31, and Claims 63 to 74 as amended are present for purposes of prosecution.

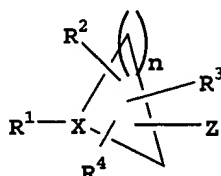
Reconsideration of the rejection of this application is respectfully requested in view of the above amendments and the following remarks.

Applicants note with appreciation that Claims 28 to 30 and 63 are allowed and that Claims 65, 67, 68, 70, 72 and 74 are only objected to.

Claim 1 and Claim 64 have been amended to define Z as a 5- or 6-membered nitrogen-containing heteroaryl group. Basis for this amendment is found in the specification at page 1, lines 24 to 27 and page 17, lines 15 to 18.

Claim 28 has been amended to delete compounds where Z is a bicyclic heteroaryl group.

Applicants' invention as claimed in Claim 1 is directed to a compound having the structure



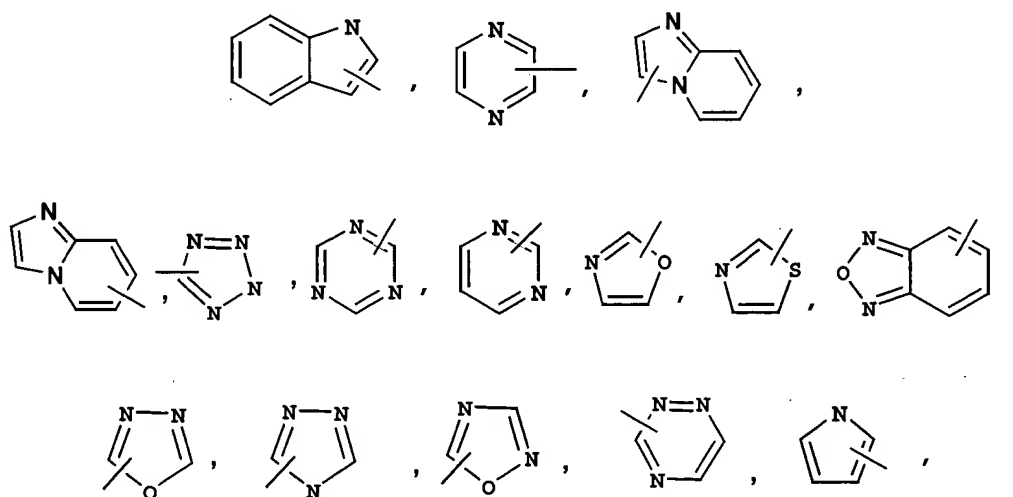
wherein n is 4;

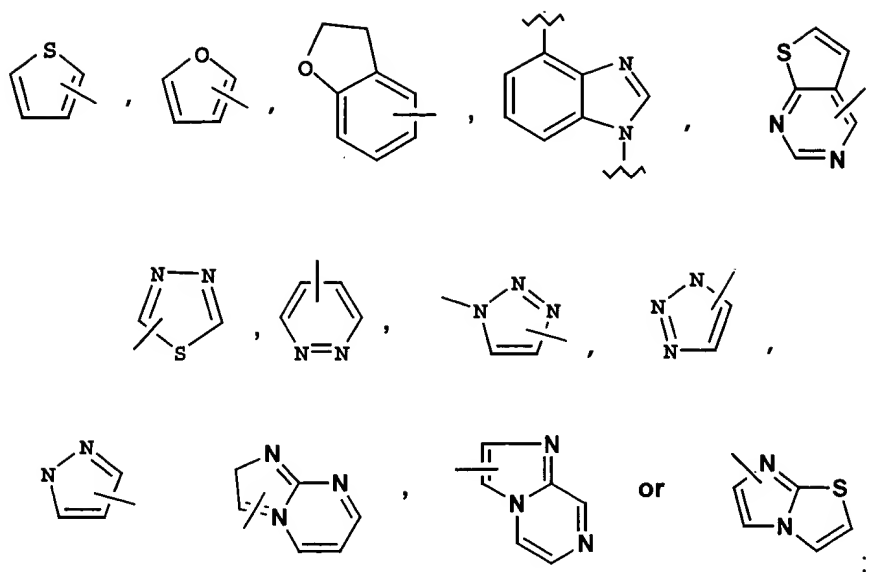
X is N;

Z is a 5- or 6-membered nitrogen-containing monocyclic heteroaryl group;

and R¹ is heteroaryl which may be unsubstituted or substituted with from one to five substituents;

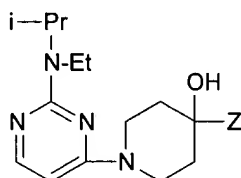
and wherein the R¹ heteroaryl group is selected from







Claims 1, 3, 8, 11, 14, 19, 22, 24, 31, 64, 66, 69, 71, and 73 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakazato et al., Chem Abstract 129: 275927. The Examiner contends that: "The instantly claimed compounds read on the reference compound, see the enclosed copy of CAPLUS computer search report and the compounds."

Nakazato et al. disclose compounds of the structure



where Z is  or .

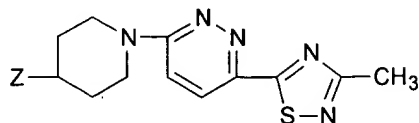
Applicants' claims have been amended so that Z is now defined as a 5- or 6-membered nitrogen-containing heteroaryl group.

The Nakazato et al. compounds include a furyl ring or a thienyl ring linked to a carbon on the piperidyl ring.

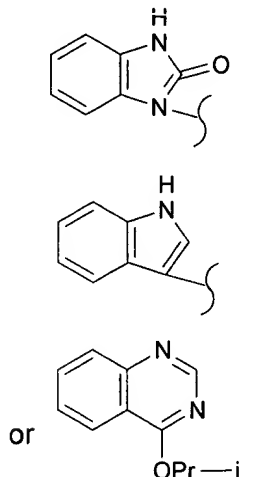
There is no disclosure or suggestion in Nakazato et al. of a compound which includes a 5- or 6-membered nitrogen containing ring linked to a piperidyl ring. Accordingly, it is submitted that Applicants' compounds are claimed are patentable over Nakazato et al.

Claims 1-3, 8, 11, 14, 15, 17, 22, 24, and 31 are rejected under 35 U.S.C. 102(b) as being anticipated by Stokkboekx et al., Chem Abstract 127: 176434. The Examiner contends that: "The instantly claims compounds read on the reference compound, see the enclosed copy of CAPLUS computer search report and the compounds."

Stokbboekx et al. discloses compounds of the structure



where Z is



Applicants' claims have been amended so that Z is now defined as a 5- or 6-membered nitrogen-containing heteroaryl group which is a monocyclic ring.

The compounds of Stokbboekx et al. include a bicyclic heteroaryl group linked to a carbon of the piperidyl.

There is no disclosure or suggestion in Stokbboekx et al. of a compound which includes a 5- or 6-membered nitrogen containing ring. Accordingly, it is submitted that Applicants' compounds as claimed are patentable over Stokbboekx et al.

Claims 1-3, 6, 8-10, 14, 15, 17, 19, 20, 22, 24-27, and 31 are rejected under 35 U.S.C. 112, first paragraph, "because the specification, while being enabling for preparation and use of compounds where R¹ is heteroaryl, does not reasonably provide enablement for preparation and use of compounds wherein R¹ is other than the functional group specified above."

The claims have been amended to define R¹ as a heteroaryl.

Claims 1, 64, and 69 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. "The following reasons apply:

4. 1). Claim 69 recites the limitation of a zigzag symbol. "There is insufficient antecedent basis for this limitation in the claim."

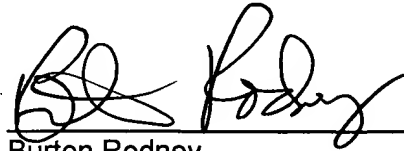
2). In Claims 1 and 64, "the word "comprising" is open ended. The word recites more than what is actually shown in the formula."

Claim 69 has been amended to remove the zigzag symbol.

With respect to Claims 1 and 64, the word comprising is not present.

In view of the foregoing, it is submitted that Claims 1 to 3, 6, 8 to 10, 14, 15, 17, 19, 20, 22, 24 to 31 and Claims 63 to 74 overcome all formal objections and are patentable over all cited prior art. Accordingly, it is believed that the above claims are in condition of allowance.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Burton Rodney", is written over a horizontal line.

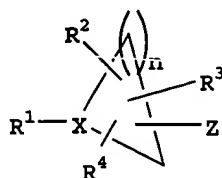
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Date: 12/9/02

MARKED-UP VERSION OF AMENDED CLAIMS

-- 1. (Thrice Amended) A compound having the structure

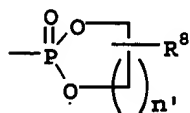


wherein n is 4;

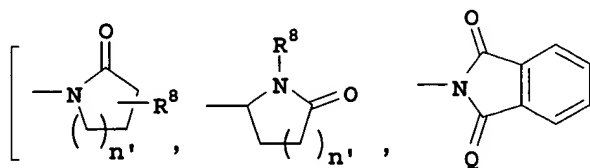
X is N;

Z is a 5- or 6-membered nitrogen-containing monocyclic heteroaryl group;

R¹ is [alkynyl, alkoxy, alkenyloxy, alkynyloxy, (alkyl or aryl)₃Si (where each alkyl or aryl group is independent), cycloalkenyl, amino, alkylamino, dialkylamino, alkenylamino, alkynylamino, arylalkylamino, cycloheteroalkyl, cycloheteroalkylalkyl,] heteroaryl, [heteroarylamino, heteroaryloxy, arylsulfinyl, arylsulfonyl, thio, alkylthio, alkylsulfinyl, alkylsulfonyl, heteroarylthio, heteroarylsulfinyl, heteroarylsulfonyl, halogen, haloalkyl, polyhaloalkyl, polyhaloalkoxy, aminothio, aminosulfinyl, aminosulfonyl, alkylsulfonylamino, alkenylsulfonylamino, alkynylsulfonylamino, arylsulfonylamino, heteroarylsulfonylamino, heteroarylaminocarbonyl, hydroxy, acyl, carboxy, alkylcarbonylamino, arylcarbonyloxy, arylcarbonylamino, heteroarylcarbonyloxy, heteroarylcarbonylamino, cyano, nitro, alkenylcarbonylamino, alkynylcarbonylamino, alkylaminocarbonylamino, alkenylaminocarbonylamino, alkynylaminocarbonylamino, arylaminocarbonylamino, heteroarylaminocarbonylamino, alkoxy carbonylamino, alkenyloxycarbonylamino, alkynyloxycarbonylamino, aryloxycarbonylamino, heteroaryloxycarbonylamino, aminocarbonylamino, alkylaminocarbonyloxy, alkoxy carbonylamino, 1,1-(alkoxy or aryloxy)₂alkyl (where the two aryl or alkyl substituents can be independently defined, or linked to one another to form a ring), S(O)₂R⁶R⁷, -NR⁶(C=NR⁷)alkyl, -NR⁶(C=NR⁷)alkenyl, -NR⁶(C=NR⁷)alkynyl, -NR⁶(C=NR⁷)heteroaryl, -NR⁶(C=NCN)-amino,



pyridine-N-oxide,]



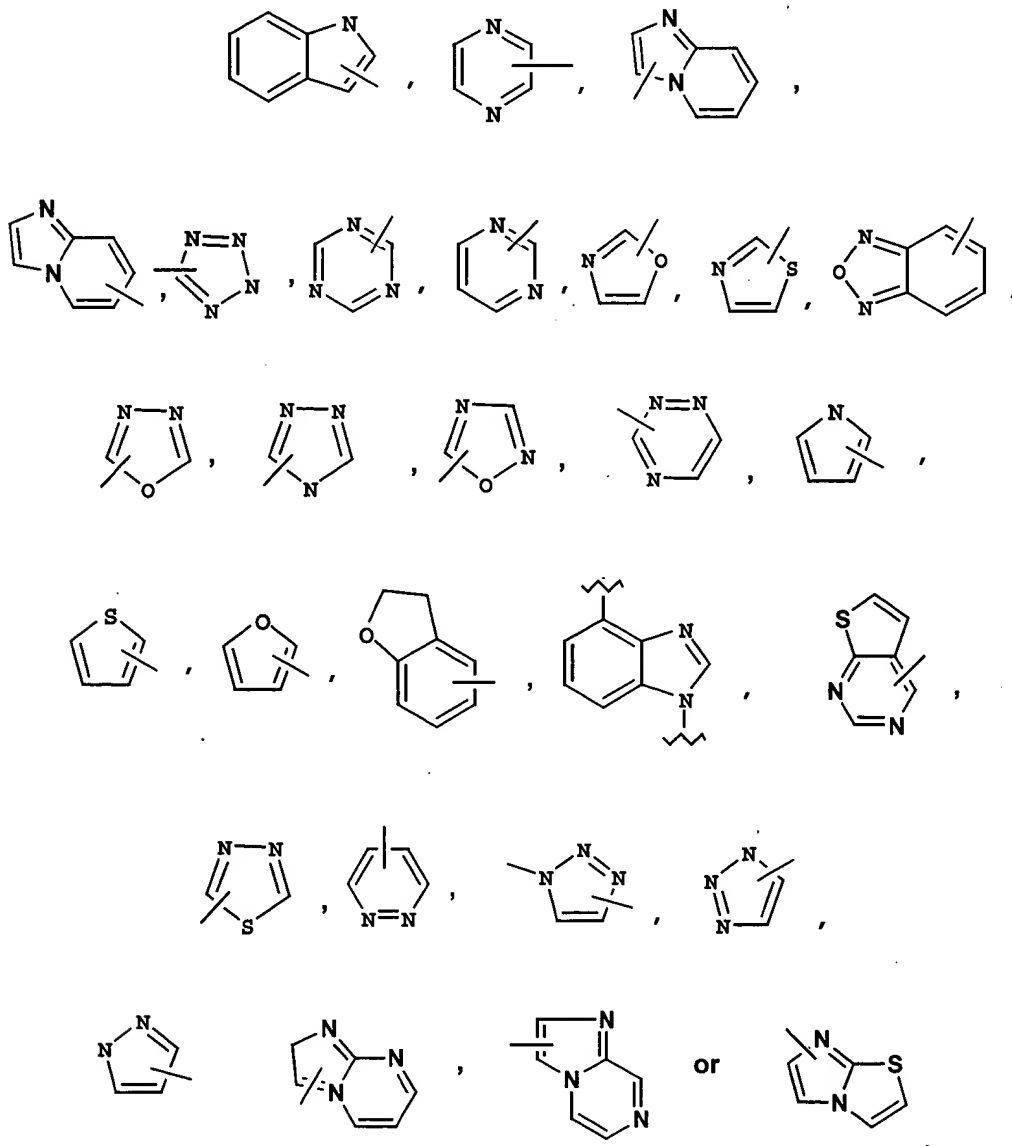
(where Q is O or H₂ and n' is 0, 1, 2 or 3) or

$\text{---C}(\text{NR}^8\text{R}^9)=\text{CH---C}(=\text{O})\text{---R}^{8a}$; $\text{---PO}(\text{R}^{13})(\text{R}^{14})$, (where R¹³ and R¹⁴ are independently alkyl, aryl, alkoxy, aryloxy, heteroaryl, heteroarylalkyl, heteroaryloxy, heteroarylalkoxy, cycloheteroalkyl, cycloheteroalkylalkyl, cycloheteroalkoxy, or cycloheteroalkylalkoxy);]

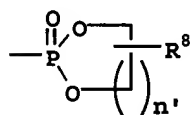
[R⁶, R⁷, R⁸, R^{8a} and R⁹ are the same or different and are independently hydrogen, alkyl, haloalkyl, aryl, heteroaryl, arylalkyl, cycloalkyl, (cycloalkyl)alkyl, or cycloheteroalkyl;]

and R¹ may be unsubstituted or substituted with from one to five substituents;

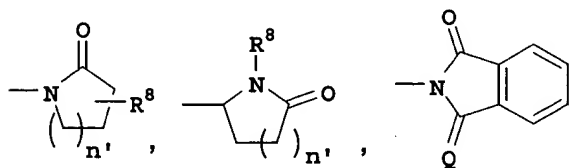
and wherein the R¹ heteroaryl group is selected from



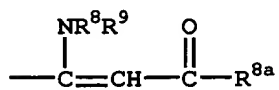
R^2 , R^3 and R^4 are the same or different and are independently H, alkyl, alkenyl, alkynyl, alkoxy, alkenyloxy, alkynyloxy, (alkyl or aryl)₃Si (where each alkyl or aryl group is independent), cycloalkyl, cycloalkenyl, amino, alkylamino, dialkylamino, alkenylamino, alkynylamino, arylalkylamino, aryl, arylalkyl, arylamino, aryloxy, cycloheteroalkyl, cycloheteroalkylalkyl, heteroaryl, heteroarylamino, heteroaryloxy, arylthio, arylsulfinyl, arylsulfonyl, thio, alkylthio, alkylsulfinyl, alkylsulfonyl, heteroarylthio, heteroarylsulfinyl, heteroarylsulfonyl, halogen, haloalkyl, polyhaloalkyl, polyhaloalkoxy, aminothio, aminosulfinyl, aminosulfonyl, alkylsulfonylamino, alkenylsulfonylamino, alkynylsulfonylamino, arylsulfonylamino, heteroarylsulfonylamino, alkylaminocarbonyl, arylaminocarbonyl, heteroarylaminocarbonyl, hydroxy, acyl, carboxy, aminocarbonyl, alkylcarbonyl, alkoxy carbonyl, alkylcarbonyloxy, alkylcarbonylamino, arylcarbonyl, arylcarbonyloxy, arylcarbonylamino, heteroarylcarbonyl, heteroarylcarbonyloxy, heteroarylcarbonylamino, cyano, nitro, alkenylcarbonylamino, alkynylcarbonylamino, alkylaminocarbonylamino, alkenylaminocarbonylamino, alkynylaminocarbonylamino, arylaminocarbonylamino, heteroarylaminocarbonylamino, alkoxy carbonylamino, alkenyloxy carbonylamino, alkynyloxy carbonylamino, aryloxy carbonylamino, heteroaryloxy carbonylamino, aminocarbonylamino, alkylaminocarbonyloxy, alkoxy carbonylamino, 1,1-(alkoxy or aryloxy)₂alkyl (where the two aryl or alkyl substituents can be independently defined, or linked to one another to form a ring), $S(O)_2R^6R^7$, $-NR^6(C=NR^7)$ alkyl, $-NR^6(C=NR^7)$ alkenyl, $-NR^6(C=NR^7)$ alkynyl, $-NR^6(C=NR^7)$ heteroaryl, $-NR^6(C=NCN)$ -amino,



pyridine-N-oxide,



(where Q is O or H₂ and n' is 0, 1, 2 or 3) or

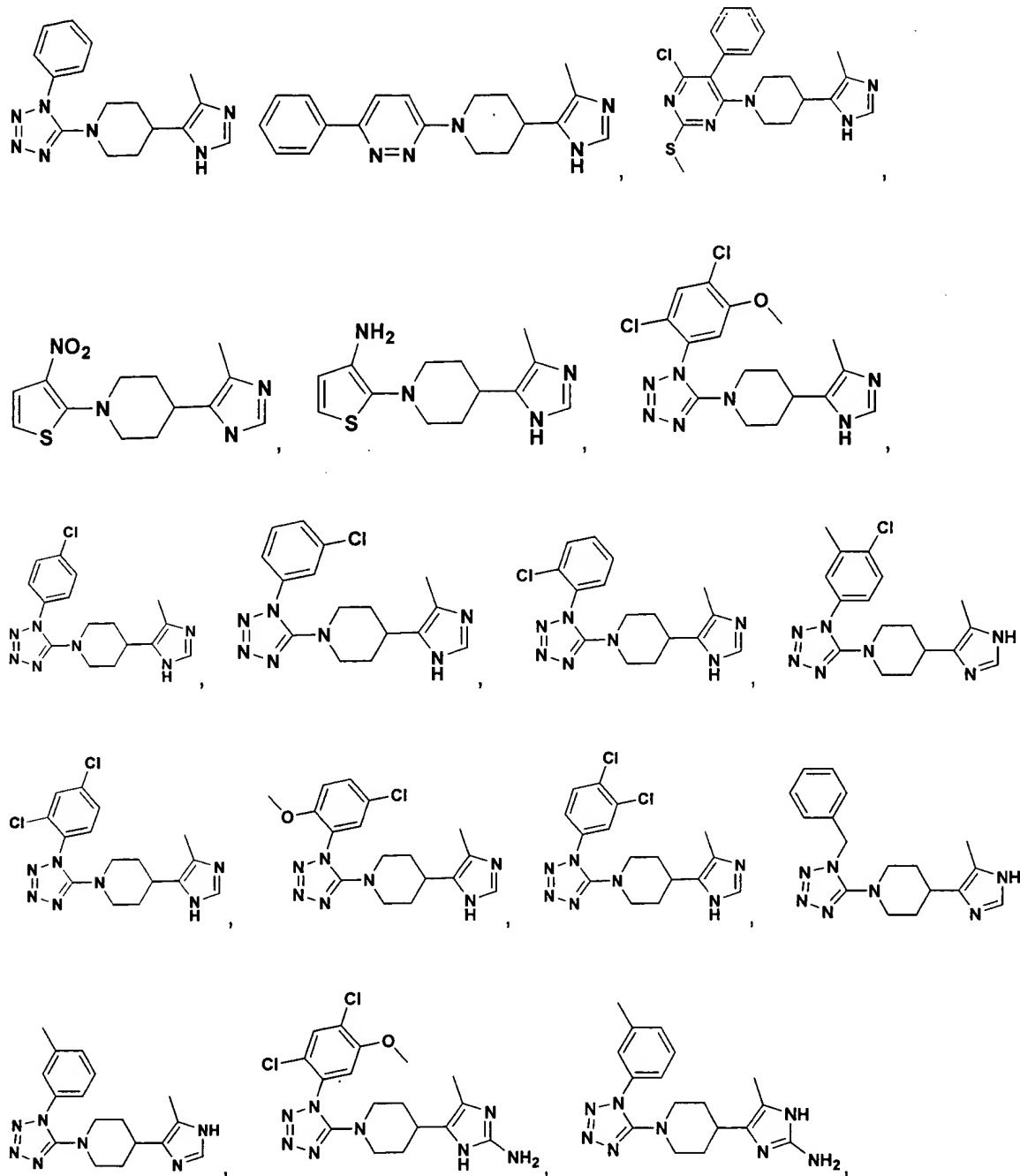


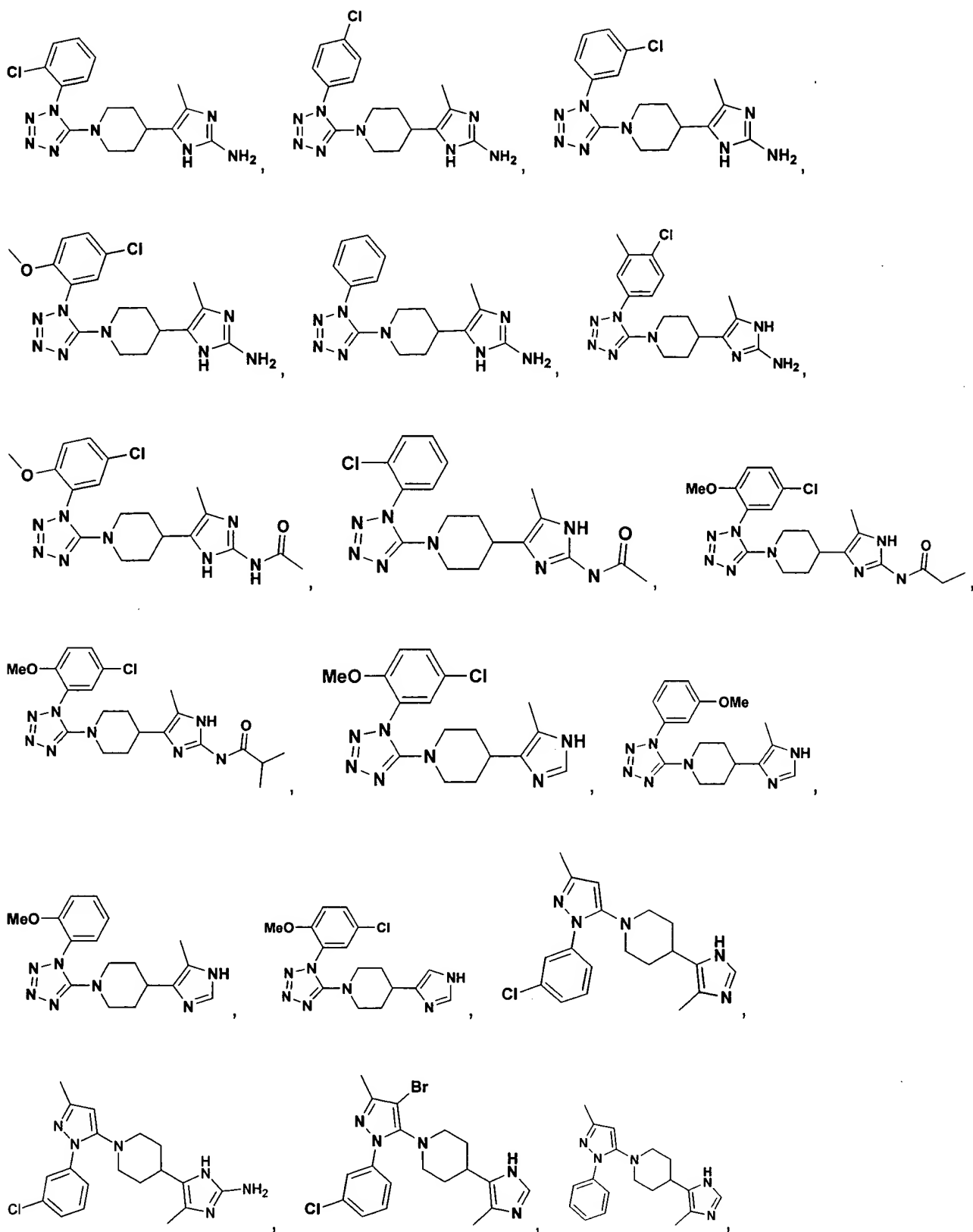
; tetrazolyl, pyrazolyl, pyridyl, thiazolyl, pyrimidinyl, imidazole, oxazole, or triazole, $-PO(R^{13})(R^{14})$, (where R^{13} and R^{14} are independently alkyl, aryl, alkoxy, aryloxy, heteroaryl, heteroarylalkyl, heteroaryloxy, heteroarylalkoxy, cycloheteroalkyl, cycloheteroalkylalkyl, cycloheteroalkoxy, or cycloheteroalkylalkoxy); and may be optionally independently substituted with from one to five substituents, which may be the same or different;

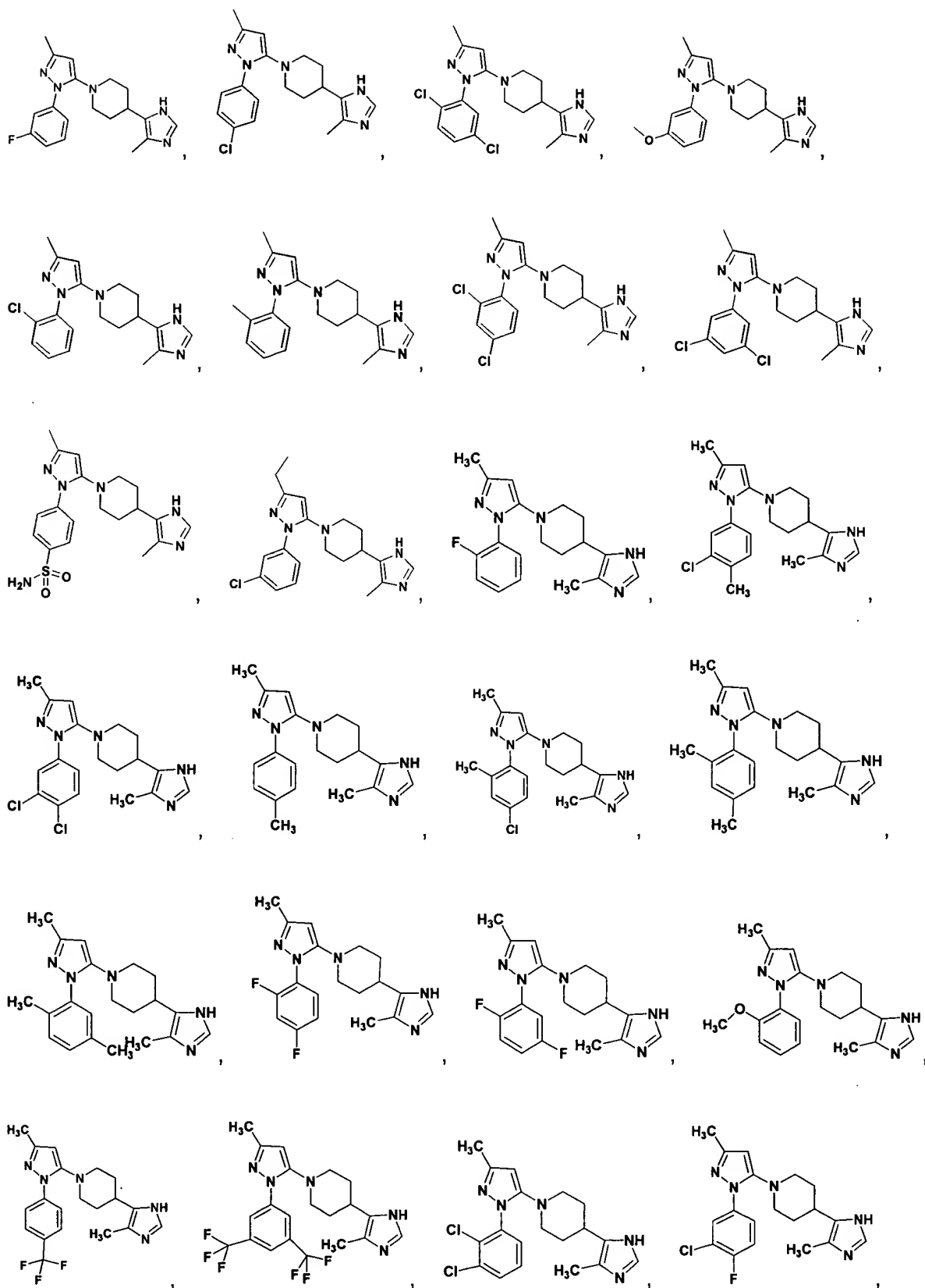
R⁶, R⁷, R⁸, R^{8a} and R⁹ are the same or different and are independently hydrogen, alkyl, haloalkyl, aryl, heteroaryl, arylalkyl, cycloalkyl, (cycloalkyl)alkyl, or cycloheteroalkyl;

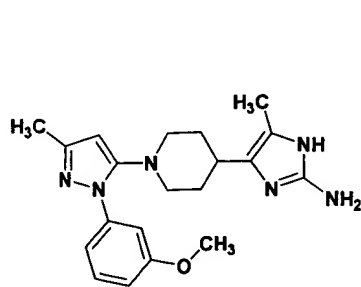
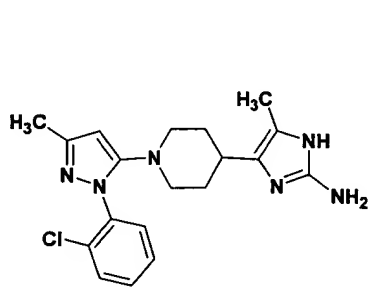
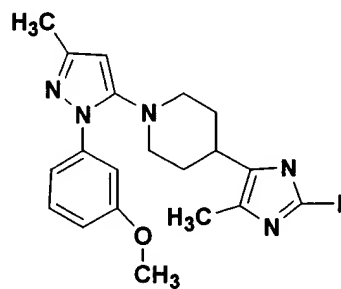
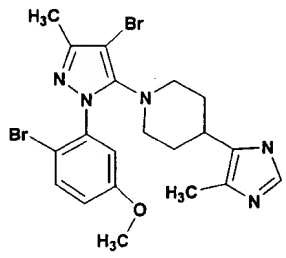
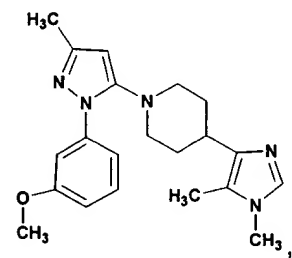
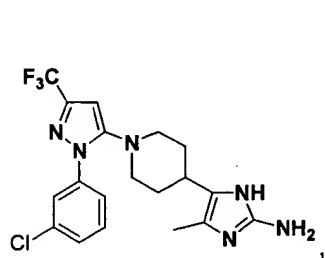
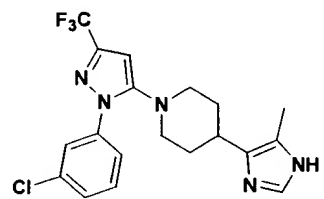
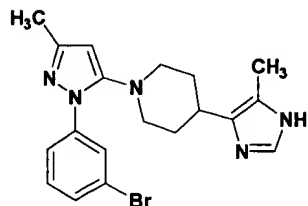
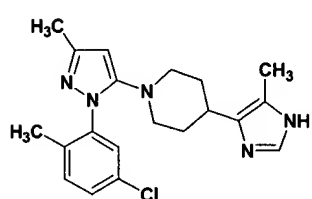
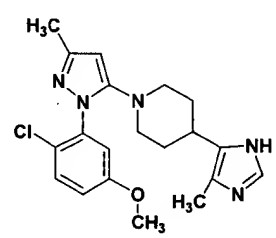
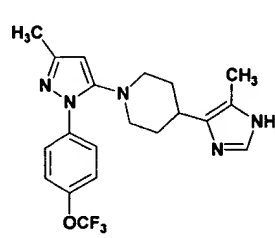
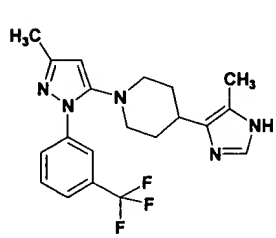
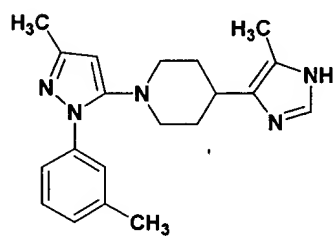
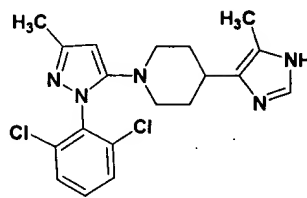
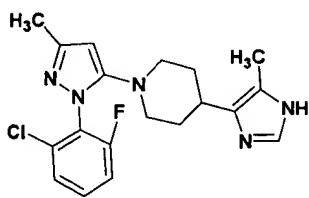
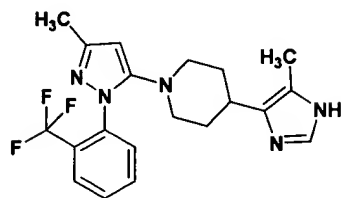
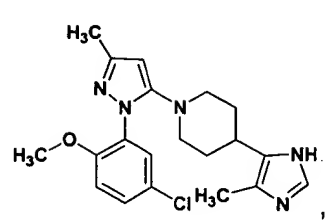
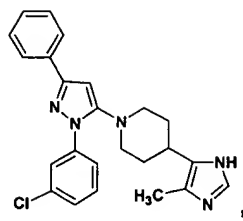
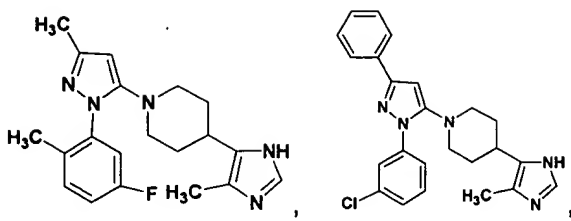
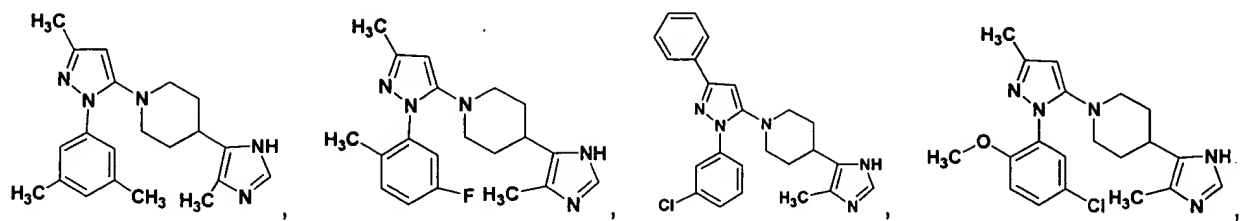
including pharmaceutically acceptable salts thereof, prodrugs thereof, and all stereoisomers thereof. --

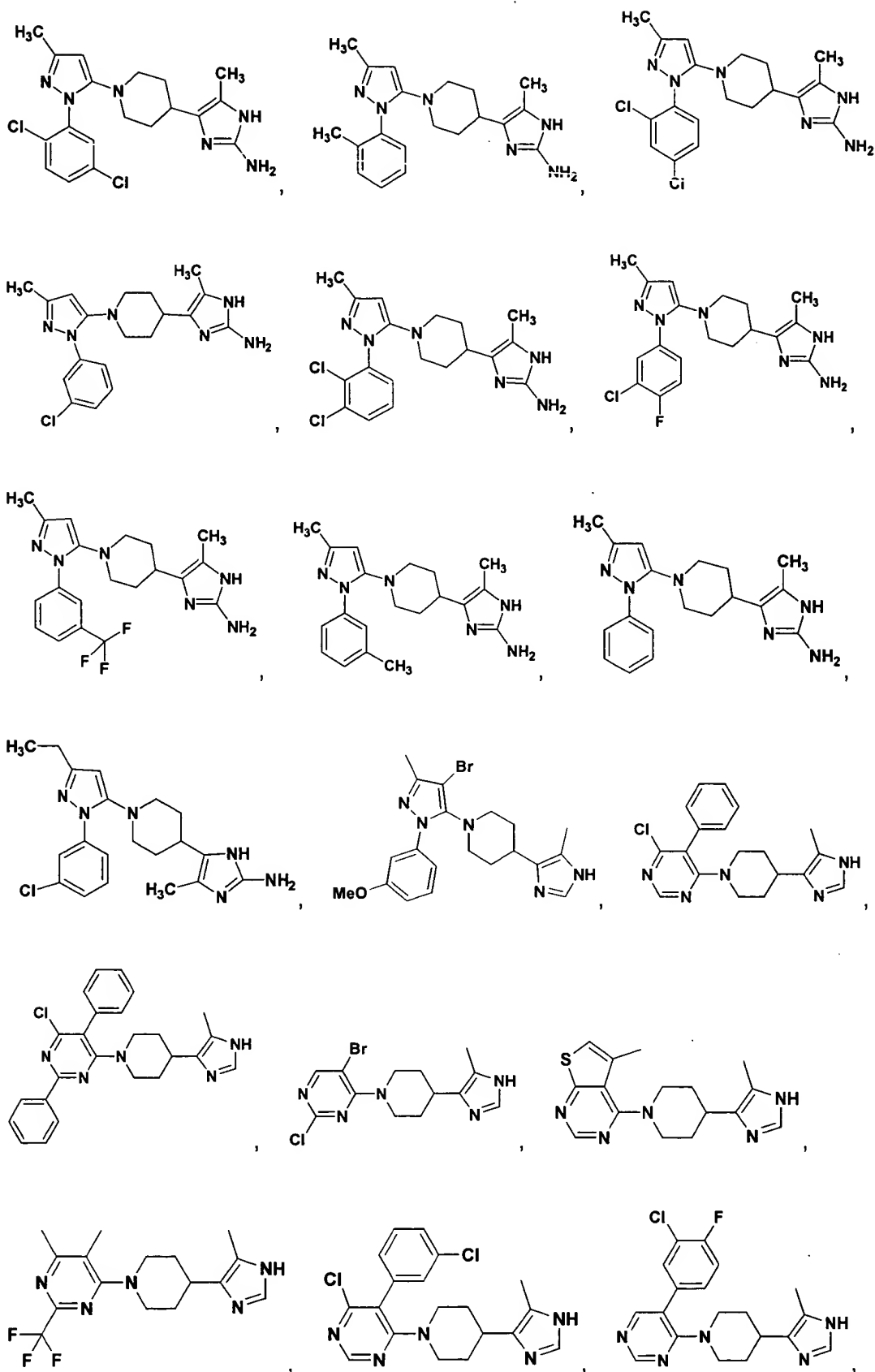
-- 28. (Twice Amended) A compound having the structure

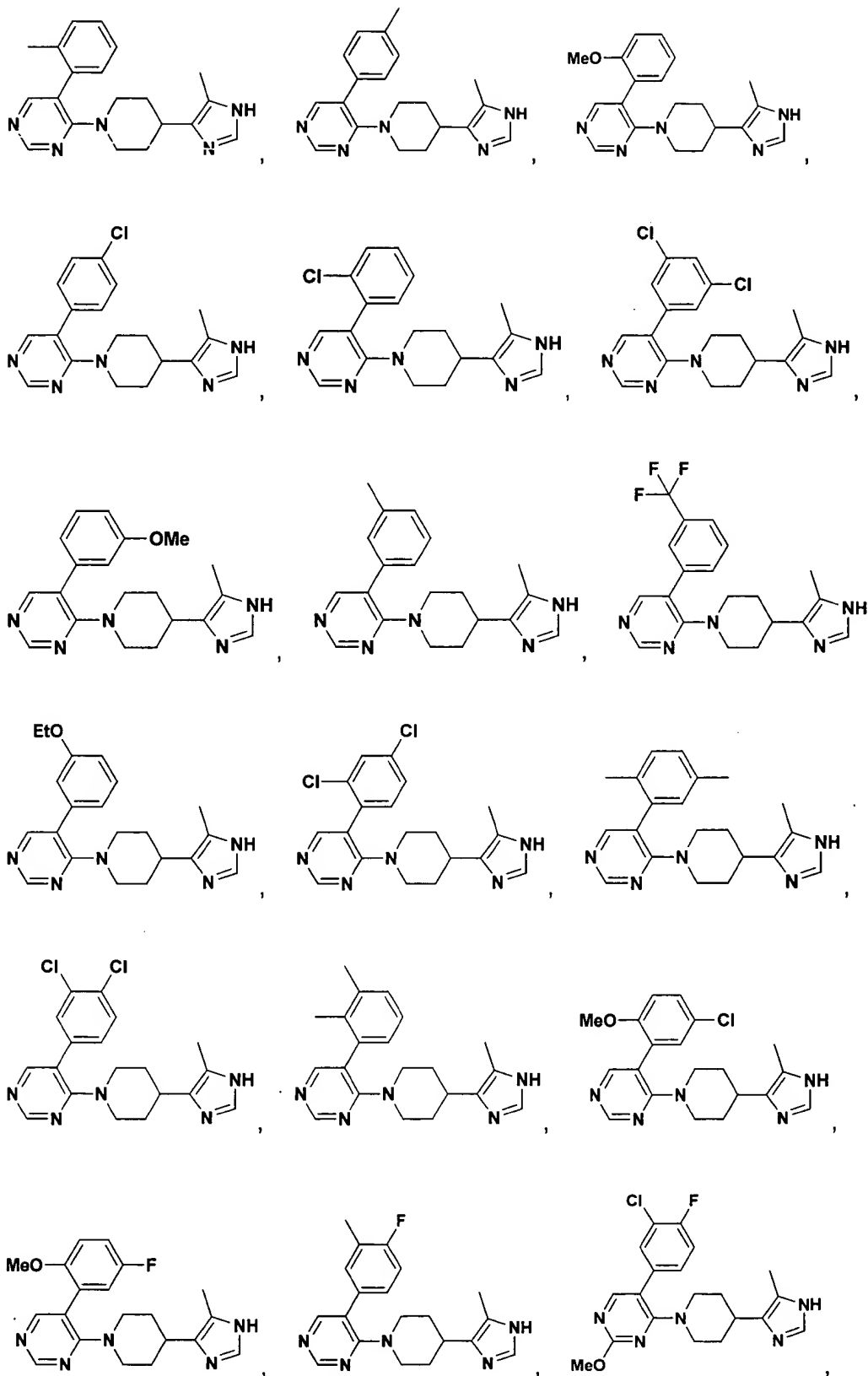


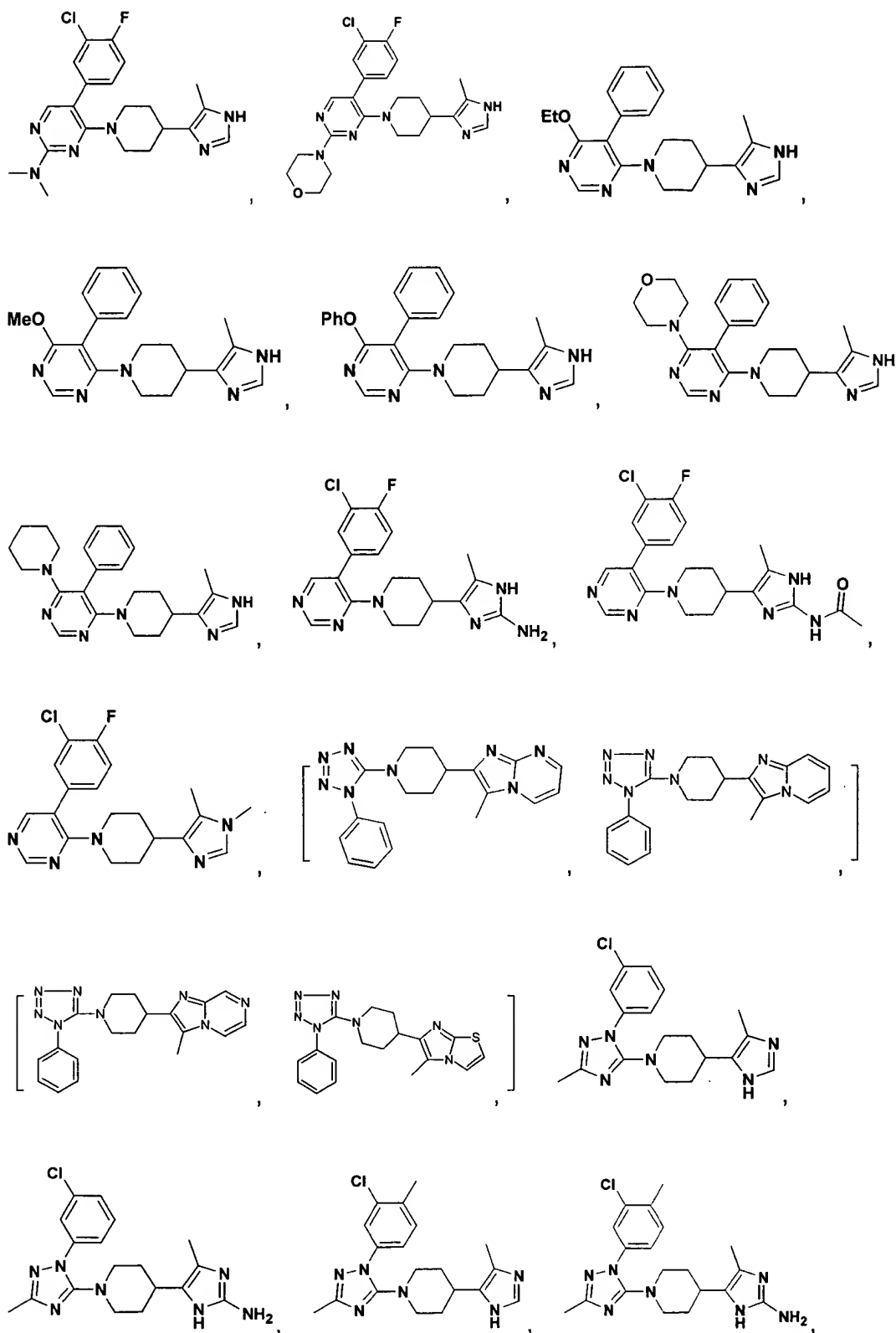


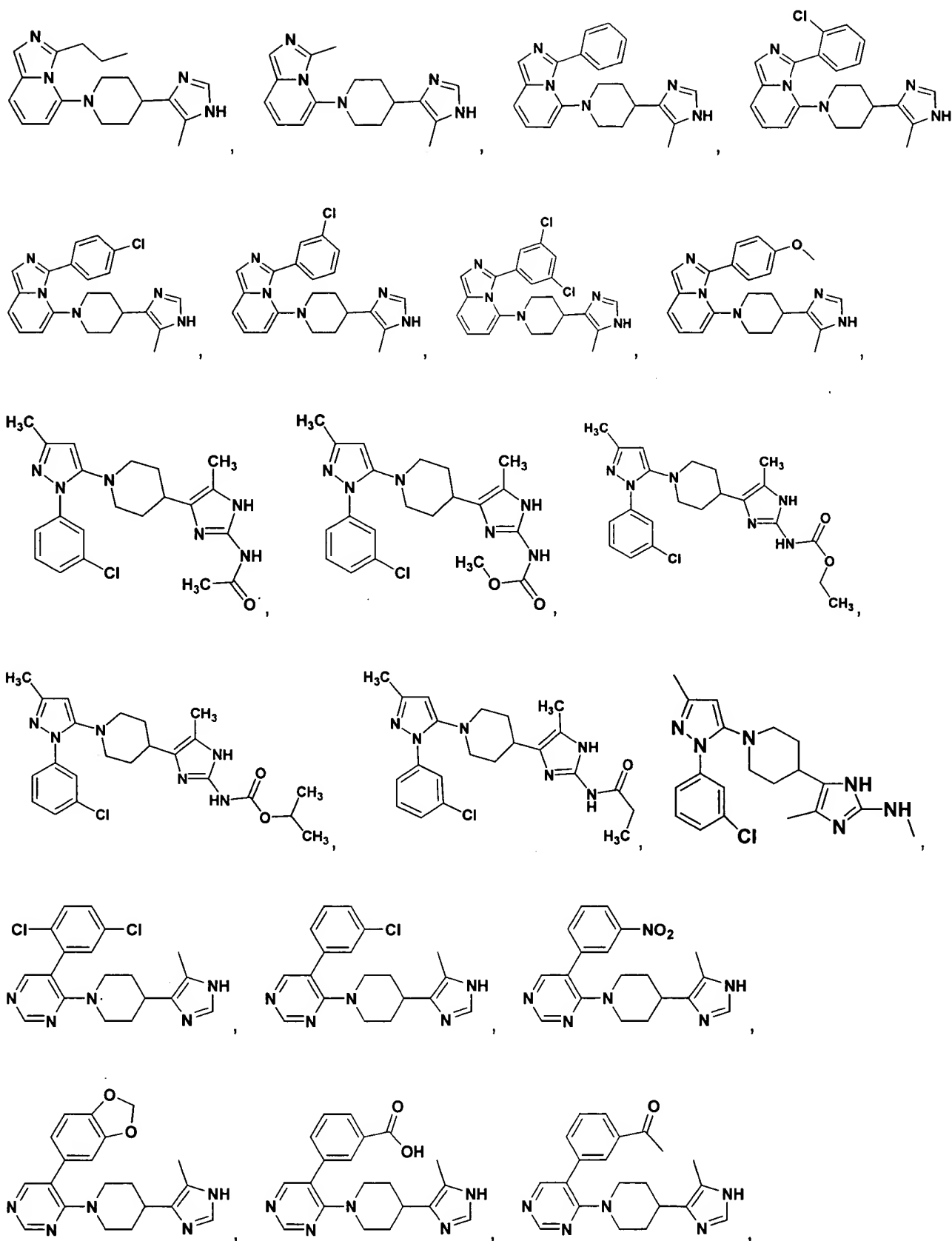


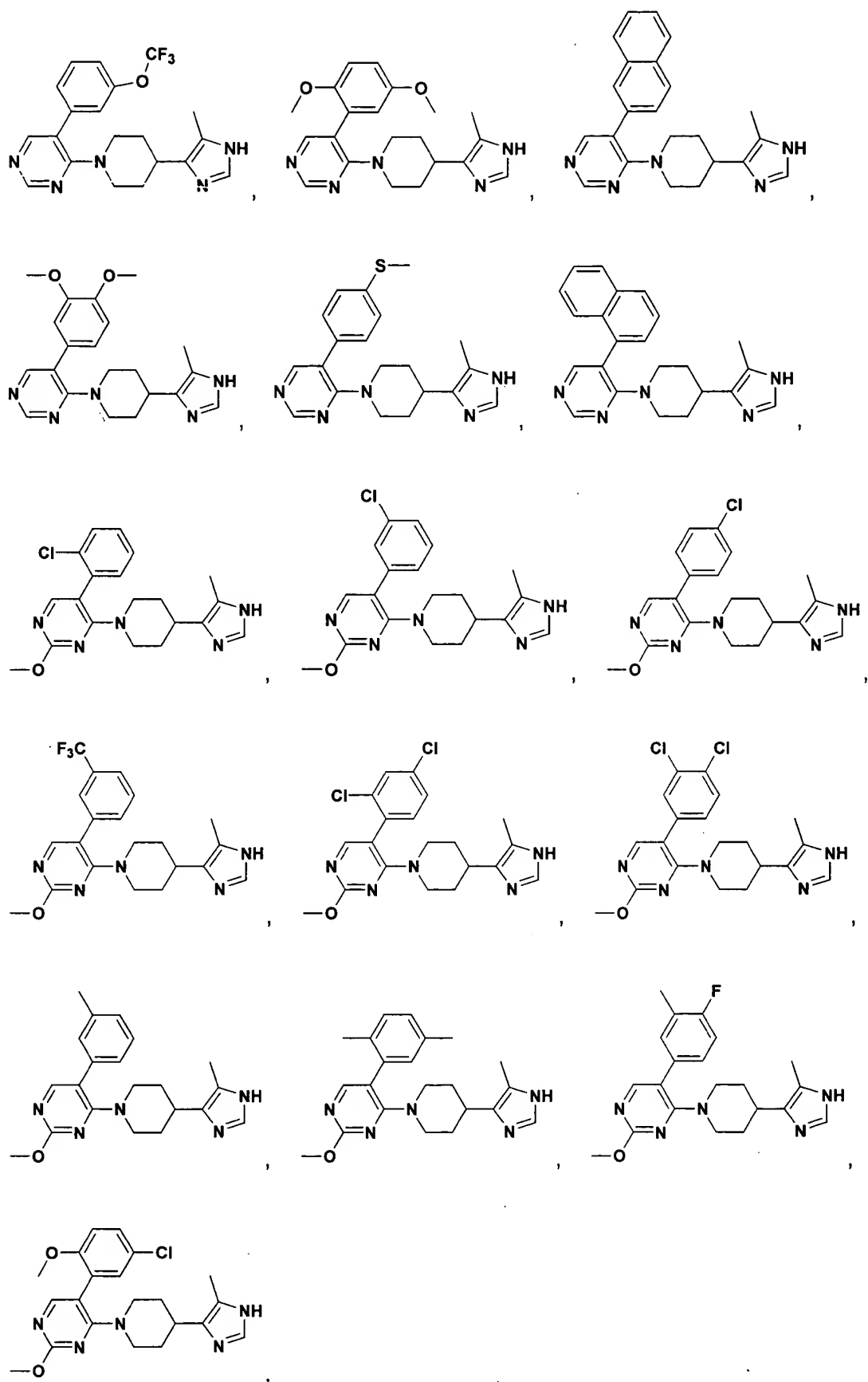


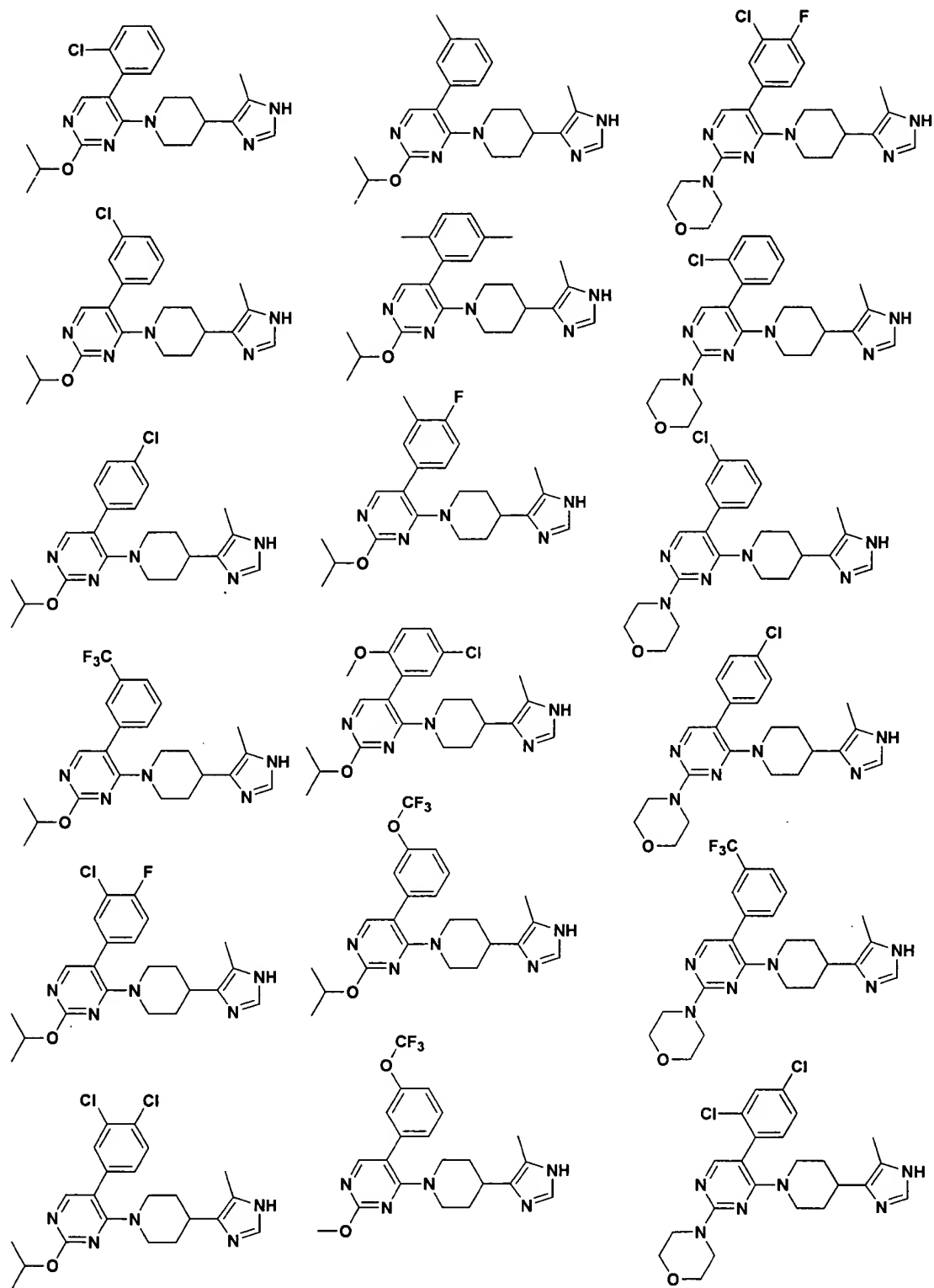


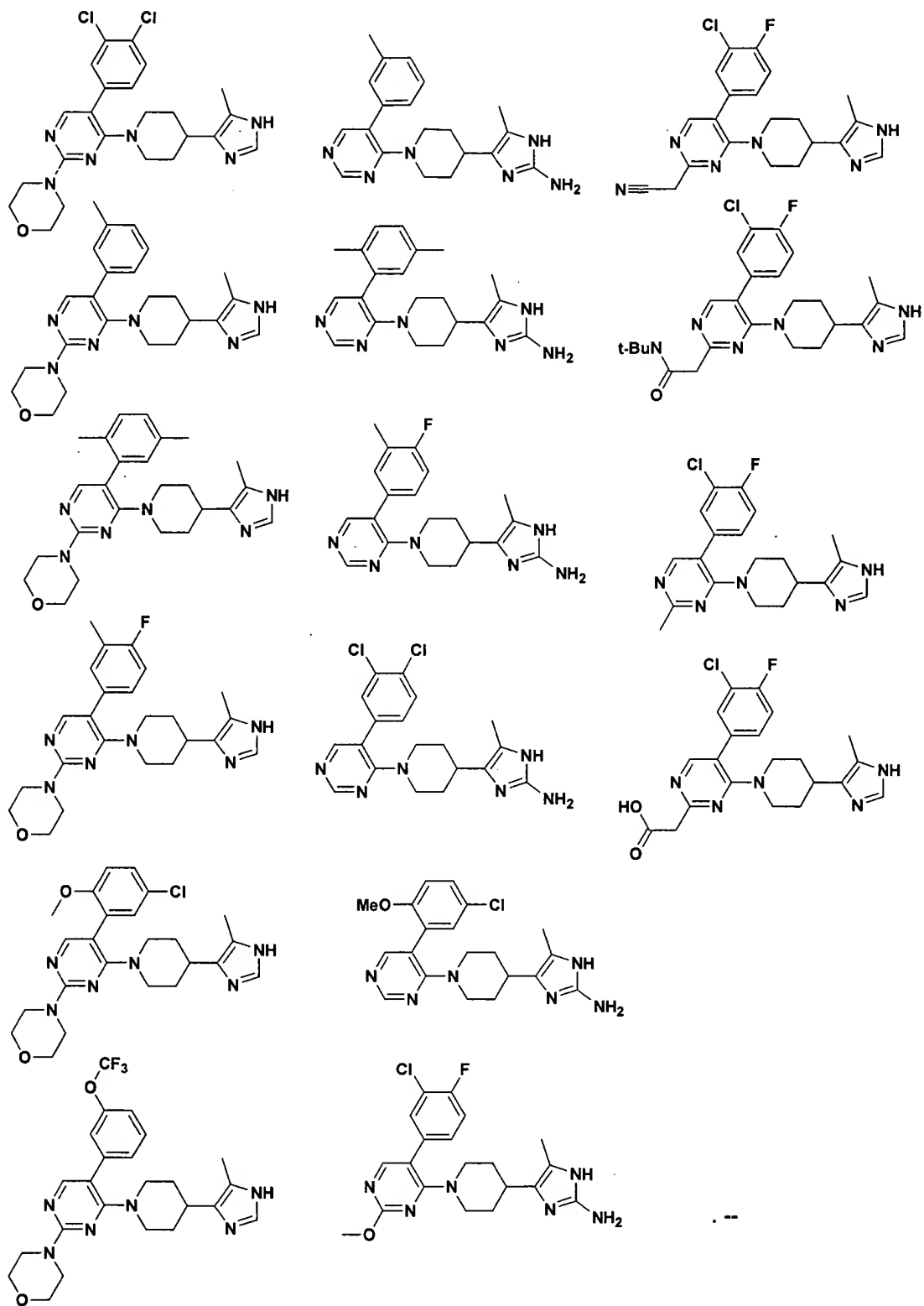




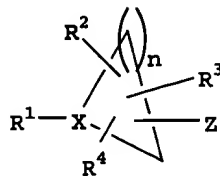








-- 64. (Twice Amended) A compound having the structure



wherein n is 4;

X is N;

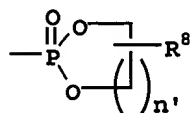
Z is a 5- or 6-membered nitrogen-containing monocyclic heteroaryl group;

R¹ is tetrazolyl, pyrazolyl, thiazolyl, pyrimidinyl, , oxazole, or triazole;

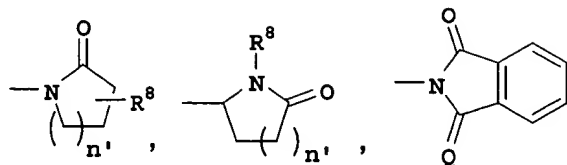
[R⁶, R⁷, R⁸, R^{8a} and R⁹ are the same or different and are independently hydrogen, alkyl, haloalkyl, aryl, heteroaryl, arylalkyl, cycloalkyl, (cycloalkyl)alkyl, or cycloheteroalkyl;]

and R¹ may be unsubstituted or substituted with from one to five substituents;

R², R³ and R⁴ are the same or different and are independently H, alkyl, alkenyl, alkynyl, alkoxy, alkenyloxy, alkynyloxy, (alkyl or aryl)₃Si (where each alkyl or aryl group is independent), cycloalkyl, cycloalkenyl, amino, alkylamino, dialkylamino, alkenylamino, alkynylamino, arylalkylamino, aryl, arylalkyl, arylamino, aryloxy, cycloheteroalkyl, cycloheteroalkylalkyl, heteroaryl, heteroarylamino, heteroaryloxy, arylthio, arylsulfinyl, arylsulfonyl, thio, alkylthio, alkylsulfinyl, alkylsulfonyl, heteroarylthio, heteroarylsulfinyl, heteroarylsulfonyl, halogen, haloalkyl, polyhaloalkyl, polyhaloalkoxy, aminothio, aminosulfinyl, aminosulfonyl, alkylsulfonylamino, alkenylsulfonylamino, alkynylsulfonylamino, arylsulfonylamino, heteroarylsulfonylamino, alkylaminocarbonyl, arylaminocarbonyl, heteroarylaminocarbonyl, hydroxy, acyl, carboxy, aminocarbonyl, alkylcarbonyl, alkoxy carbonyl, alkylcarbonyloxy, alkylcarbonylamino, arylcarbonyl, arylcarbonyloxy, arylcarbonylamino, heteroarylcarbonyl, heteroarylcarbonyloxy, heteroarylcarbonylamino, cyano, nitro, alkenylcarbonylamino, alkynylcarbonylamino, alkylaminocarbonylamino, alkenylaminocarbonylamino, alkynylaminocarbonylamino, arylaminocarbonylamino, heteroarylaminocarbonylamino, alkoxy carbonylamino, alkenyloxy carbonylamino, alkynyloxy carbonylamino, aryloxy carbonylamino, heteroaryloxy carbonylamino, aminocarbonylamino, alkylaminocarbonyloxy, alkoxy carbonylamino, I,I-(alkoxy or aryloxy)₂alkyl (where the two aryl or alkyl substituents can be independently defined, or linked to one another to form a ring), S(O)₂R⁶R⁷, -NR⁶(C=NR⁷)alkyl, -NR⁶(C=NR⁷)alkenyl, -NR⁶(C=NR⁷)alkynyl, -NR⁶(C=NR⁷)heteroaryl, -NR⁸(C=NCN)-amino,



pyridine-N-oxide,



(where Q is O or H₂ and n' is 0, 1, 2 or 3) or

$\text{---C}(\text{NR}^8\text{R}^9)=\text{CH---C}(=\text{O})\text{---R}^{8a}$; tetrazolyl, pyrazolyl, pyridyl, thiazolyl, pyrimidinyl, imidazole, oxazole, or triazole, $\text{---PO}(\text{R}^{13})(\text{R}^{14})$, (where R¹³ and R¹⁴ are independently alkyl, aryl, alkoxy, aryloxy, heteroaryl, heteroarylalkyl, heteroaryloxy, heteroarylalkoxy, cycloheteroalkyl, cycloheteroalkylalkyl, cycloheteroalkoxy, or cycloheteroalkylalkoxy); and may be optionally independently substituted with from one to five substituents, which may be the same or different;

R⁶, R⁷, R⁸, R^{8a} and R⁹ are the same or different and are independently hydrogen, alkyl, haloalkyl, aryl, heteroaryl, arylalkyl, cycloalkyl, (cycloalkyl)alkyl, or cycloheteroalkyl;

including pharmaceutically acceptable salts thereof, prodrugs thereof, and all stereoisomers thereof. --

69. (Amended) The compound as defined in Claim 64 wherein the moiety

